272 Exercise and quality of life in patients with cystic fibrosis – a 12-week intervention study

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Purpose: It was hypothesized that increased exercise capacity (VO_{2max}) is related to increased quality of life (QoL) in patients with cystis fibrosis (CF).
Method: A 12-week individually tailored unsupervised aerobic exercise programme was offered to 42 patients with CF. At the start and at the end of the exercise programme data on QoL, current exercise habits and preferences, anthropometric data, exercise test and lung function test were measured. Adherence was observed by a heart rate monitor.
Results: A total of 24 patients accepted to be enrolled in the exercise programme and 14 completed the programme. Another 14 patients declining to be enrolled in the exercise programme completed "The Cystic Fibrosis Questionnaire for adolescents and adults" (CFQ-R 14+). 4 patients did not want to participate at all. The 14 patients completing the exercise programme had a significantly increased VO_{2max} but showed no significant change in total QoL score. However, the scores in the domain of treatment burden and emotional functioning increased significantly. There was no significant difference in QoL and lung function between patients participating in the exercise programme ($n = 24$) and non-participants ($n = 14$).
Conclusion: A 12-week individually tailored unsupervised aerobic exercise programme where heart rate monitors were used significantly affected VO_{2max}. Improvement in QoL could not be demonstrated in this study.

273* CF and sport – encouraging the motivation by a specific sport program

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Clinical studies have shown positive effects of physical activity on course of CF disease. With our specific sport program we wanted to encourage the motivation of children with CF to more physical activity and sport.
In a prospective observation study all CF patients from 6 to 18 years were screened annually for physical activity (PA; activity sensor: Sensewear®) and physical capacity (PC; exercise testing, Godfrey protocol). From these results individual recommendations for escalation of PA and PC were deviated and furthermore we offered continuous backup for there implementation. Changes of clinical parameters (FEV1%, BMI Z-Score), of PA and PC were calculated with T-test.
We evaluated data from 87 patients at two time points, with an age (MW±SD) of 11±3 as well as 12.4±3 years. In this period PA was un-changed (197±36 vs 185±29 METs % of basal metabolic rate; $p = 0.11$) while PC increased (2.9±0.6 vs 3.1±0.6 Watt/kg, $p < 0.001$; 93±20 vs 96±18 % of age norm, $p = 0.06$). The clinical status kept stable (FEV1 92±16 vs 90±16 %, $p = 0.43$; BMI Z-Score –0.49±0.94 vs –0.61±1, $p = 0.36$). There were no gender differnces. In the subgroup of CF patients older than 13 years ($n = 23$) we also observed an increase of PC (88±18 vs 96±20 % of age norm, $p = 0.006$) without a decrease of PA (190±21 vs 198±22 METs % basal metabolic rate, $p = 0.59$) and FEV1.
With our sport program we were able to increase PC and to stabilise PA even in teenagers, who normally show a decrease in their PA. An individualized training program with continuous support by a trainer seems to work at least over the observation period of 1.4 years. The long term aim is to change daily habit to more PA and improve clinical status.

274 Provision of structured exercise in specialist UK cystic fibrosis centres

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Introduction: Structured daily exercise is important in Cystic Fibrosis (CF), but may not be given a high priority.
Method: We surveyed all recognised UK CF centres through their physiotherapy specialists using a structured questionnaire asking about routine practice: 82% responded (19 adult, 21 paediatric), caring for 6126 CF patients.
Results: Although exercise was standard treatment at all centres [supervised by physiotherapists in 21 (55%), with assistants in 18 (45%) exercise physiologists alone in 1 (3%)], it was only given a high priority in 11 (29%). Most centres (31, 82%) offered daily inpatient exercise, 2 (3%) only offered it once per stay. Inpatient activities included gym sessions, walking, outdoor sports, and Wii [median 30 minutes/session (range 5 to 60)]. Although 35 centres (88%) had inpatient gym facilities, there were great variations in available equipment. Outpatient supervised exercise was limited by resource [staff shortage 34 (85%), lack of facilities/equipment 15 (39%), and lack of expertise 1 (3%)]. Four centres (10%) had full access with 6 week exercise programmes, 18 (47%) arranged community physiotherapy support, and 26 (68%) provided advice only.
Although all centres limit inpatient gym access in line with cross infection policy, only 12 (21%) segregated those using community gyms and only 15 (39%) kept records.
Conclusions: This study shows that the availability of exercise in UK CF clinics varies widely: provision for this needs to be factored into CF healthcare budgets to allow equity of access to this important therapy. More attention also needs to be paid to outpatient gym segregation to prevent cross infection.

275 The effects of Nintendo Wii® exercise training in adults with cystic fibrosis

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Background: The Nintendo-Wii® facilitates exercise-based programs that may be considered novel, fun, and potentially motivating. Objective exercise outcomes using the Wii have yet to be reported in the Cystic Fibrosis (CF) adult population.
Aim: To investigate Nintendo Wii® exercise training compared with an existing exercise program in adult CF whilst hospitalised for treatment of a pulmonary exacerbation.
Study design: A within subjects, randomised cross-over study. Adult CF subjects received two 15-minute exercise treatment sessions within a 48-hour period during the last several days of hospitalisation. Standard exercise consisted of moderate to high intensity interval training on treadmill or bike. The Wii training utilised interval training with Wii Active® program. VAS (0–10) were used to rate participant perception.
Results: 15 subjects completed the study (mean age 26±6 yrs, 47% females). There was no difference in heart rate ($p = 0.98$) or oxygen saturation ($p = 0.46$), Borg RPE ($p = 0.39$) or breathlessness Borg ($p = 0.61$) between groups during exercise. Participants enjoyed the Wii program more ($p < 0.01$) and reported lower levels of fatigue following the Wii program ($p = 0.03$), though both programs were rated subjectively as equally effective workouts by participants ($p = 0.86$).
Conclusions: This study presents preliminary information supporting the use of Wii Active exercise program as an alternative to a standard exercise intervention in the adult CF population. In addition, with greater enjoyment reported following the Wii Active program, it may be possible to improve exercise adherence. Further study may identify long term benefits of Wii-based training.